DOE Open Grid Services Architecutre (OGSA) Project

Overview of the Project

- Develop Open Grid Services Architecture
  - Grid Services Specifications
  - Open Grid Services Infrastructure
    - Implementations in multiple languages and protocols
  - Higher-level Services
  - Application services and infrastructure
- Structure of the proposal
  - Participants: LBNL and ANL
  - Funded by DOE
  - 3 year project
  - Started last May

Emphasis

- Addressing the needs of scientific computing community
  - ◆ Language bindings and infrastructure implementation
    - Python
    - C/C++
  - ◆ Performance aspects
    - Investigation of fast communication protocols
    - Encodings
    - Overall performance
  - ◆ Application-level services and software

Current Focus

- Language bindings
  - C bindings: ANL
  - Python bindings: LBNL

C/C++ language bindings: Approach

- C versus C++ bindings
  - ◆ C bindings accessible from C++
  - ◆ Strategy: provide C bindings first, C++ later
- Approach
  - ◆ client side first, hosting environment later
- Short-term client side deliverables
  - ◆ Provide OGSA-style bindings
    - • Enable C clients to program within GT3
  - ◆ Provide GT2-style client side wrappers for specific services
    - • Provide API-level backwards compatibility with GT2
    - • GRAM interface is our first target

Client C bindings: Implementation

- Based on gSOAP package
  - ◆ Work by Robert van Engelen from FSU
  - ◆ Provides stub generation based on a C header file
  - ◆ Some shortcomings
- C client bindings work
  - ◆ Modified gSOAP transport to use globus io
    - • Current implementation relying on httpg
    - • Working on adding SOAP security
  - ◆ Converting WSDL into C (hand coded for GRAM for now, work on WSDL2C in progress)
  - ◆ Client implementation of the Grid Service
  - ◆ Fully interoperable with Java server-side implementation

C bindings: current and future plans

- Current availability
  - First implementation of C client bindings released as part of TP4 end of October 2002
    - GT3-style Client bindings for GRAM
  - Available from www.globus.org/ogsa

- Near future plans
  - GT3 alpha release early 2003
    - SOAP security
    - WSDL2C compiler
    - GT2 style wrappers for GRAM

- Later
  - Hosting environment work
  - C++

Application Research

To learn more…

- SC02 presence
  - ◆ Come and talk to us in ANL and LBNL booths
- On the web:
  - ◆ www.globus.org/ogsa

- Global Grid Forum
  - ◆ Multiple working groups:
    - OGSI-WG
    - OGSA-WG
    - OGSA Security WG
    - Others are being formed…

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